SANDVIK

DS221L
Low profile cable bolter

Technical Specification





Your partner in rock drill reinforcement

Key features

Coverage area	6 120 x 2 900 (11 m²)
Hydraulic rock drill	1 x RD314 (14 kW)
Cable bolting head	1 x SCBH-LP
Boom	1 x B26S LPCB
Control system	THC561, hydraulic
Hole length	Up to 6.3 m
Hole diameter	Ø38 mm, Ø48 mm
Total weight	17 000 kg depending on options

Agile and robust, engineered with safety in mind, the new Sandvik DS221L cable bolter ensures a high quality bolting in low profile seams.

Sandvik DS221L is the first low-profile cable bolter with one-hole automation specialized into pre-tensioned cable-bolts installation. The drill rig incorporates a variety of features for reliable, efficient and precise bolting. The drilling functionalities keep productivity constant and repeatable reducing the risk of unsteady or hazardous results.

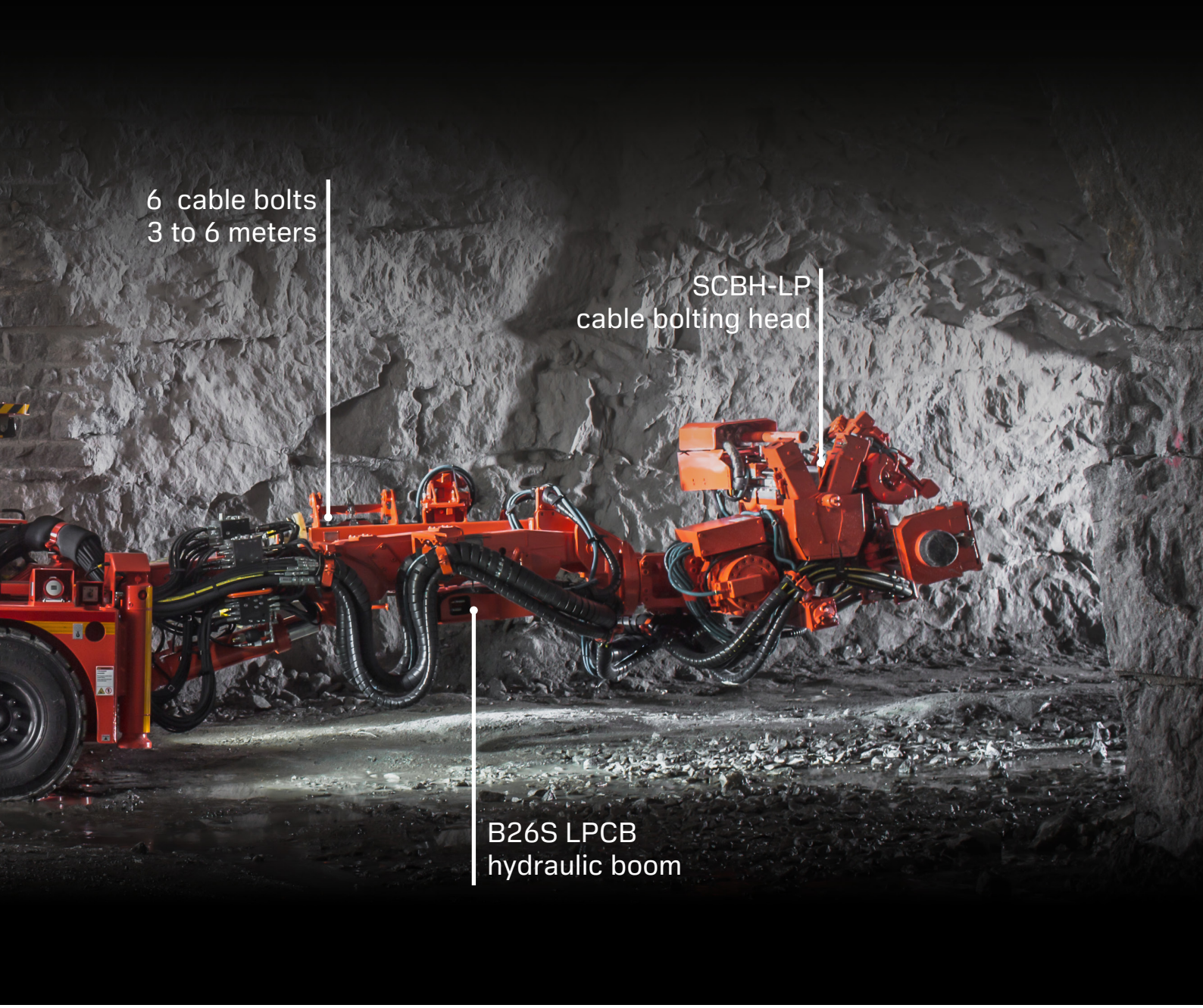
The one-hole automation, on-board cement mixer and bolting monitoring system bring peace of mind to your operations. The fully autonomous grout control mix guarantees grout consistency: the water/cement ratio is managed automatically by the machine and set by the rock mechanic.

Sandvik DS221L is a rock reinforcement drill rig specialized into mechanized and cement grouted cable-bolts installation. The machine is designed for a nominal gallery height of 2 m (+/- 0.2 m) in underground mines and tunnels. The Sandvik DS221L is able to install cable anchors up to 6 meters length.

The drill rig is provided with an on board cement mixer, cement bags platform and cable magazine of 6 cable bolts. The drill rod handling system has a capacity of 8 rods. Hole drilled can be Ø38 mm or Ø48 mm depending on the cable shell.

Once the area underneath the cable is safe thanks to the cable pre tensioning, the operator can attach the hose for post-grouting by hand.
As all the Sandvik drill rigs based on the LP carrier family, the Sandvik DS221L is designed for safety.

For example, most of the daily and routine checks can be done from the ground.



Main benefits

One-hole automation: constant drilling time

Our latest low-profile cable bolter, delivers constant high quality bolting under safer working conditions. This mechanized cable bolter reduces your operation's physical risks by:

- Having a single operator away from unsupported ground driving the drilling and bolting process remotely
- Eliminating manual operations for rod handling and bolt insertion
- Providing immediate support of the roof (pre-tensioning)
- Ensuring consistency and quality of the grout



Improved safety

Up to 50%* fewer workers exposed to hazardous situations underground



Increased productivity

Up to 50%* more Cable installed per crew per month.



Improved bolting quality

100%* consistency control of bolt installation



Safe working environment

The operator is protected by a FOPS/ ROPS canopy and can safely perform bolting operations away from the dangerous area by using the remote control panel.



One-hole automation

One-hole automation means the bolter can drill the hole and manage extension rods (adding / coupling – uncoupling) without operator intervention.



On-board cement mixer

The drill is equipped with an onboard cement mixer with a capacity of 145 liters and a cement bag platform capable of containing 5 bags of 20 kg each.



Immediate rock support

The pre-tensioned cable bolt installation offers immediate rock support and a safer environment for the operator to perform the post-grouting.



Bolts magazine

Magazine fitted allong the boom can store 6 cable bolts, 3 m to 6 m length



Safe and optimized operator's station

Safety canopy is certified FOPS/ROPS for a 1950 mm position high, that allows a operator's protection without uncomfortable during the drilling and tramming phase.



Sandvik 365 Parts and Services

Proudly keeping you on track!

Sandvik 365 Parts & Services offer a variety of possibilities to enhance your Sandvik DS221L drill's performance performance. As an OEM, we provide the best-suited choices to preserve your machine's high performance throughout its lifetime.

These consist of highly skilled service specialists supporting you 365 days a year, all using Sandvik Genuine parts and components complemented by a range of robust tools.

In addition, you get to enjoy the benefits of advanced digital services and a global infrastructure dedicated to keeping your Sandvik fleet on track.

Technical Specification

Hydraulic rock drill

Type of rock drill	RD314 (TS2-137)
Percussion power	14 kW
Percussion pressure	Up to 160 bar
Rotation pressure	Up to 175 bar
Percussion rate	110 Hz
Stabilizer	0 - 100 rpm
Rotation speed	Max. 530 rpm (with OMS100)
Rotation torque	505 Nm (with OMS125)
Hole size	38 - 48 mm
Recommended rod	M/M R23 / R32
Shank adapter	R23 / R32 (female)
Smallest bit	D38 mm (female shank) D48 mm (male shank)
Weight	115 kg

Wrench RHR50

Type of wrench	RHR54 (TS2-250)
Rotation speed	0 - 500 rpm (OMS160)
Rotation torque	450 Nm (OMS160)
Weight	40 kg

Cable bolting head

Type of bolting head	SCBH-LP (TS2-332) (Standard)	SCBH-LP (TS2-332) (Contact factory)
Type of feed	CF-feed	CF-feed
Rod handling system	8 + 1 rods	6 + 1 rods (limited)
Cable operation magazine capacity	6 equipped cables (3 m as standard or easily adaptable up to 6 meters length)	
Stingers (retractable / extended)	1 740 / 2 740 mm	2 120 / 3 497 mm
First rod (min. / max.)	1 150 / 1 150 mm	1 220 mm
Additional rods (min. / max.)	675 / 725 mm	915 mm
Total length	1 800 mm	2 180 mm

Boom

Type of boom	B26S LPCB (TS2-323)
Parallel coverage	3 600 x 1 800 mm
Boom extension	1 200 mm
Roll-over angle	± 120° (240°)
Boom weight, net	1 900 kg

Grouting and cabling system

Type of cement mixer	PFT G4 next generation Water/cement ratio automatically controlled
Cement mixer pump capacity	Max. 8 l/min
Cement mixer capacity	145 liters
Equipped mechanized cable with nuts	Installation + pretensioning fully mechanized. Manually post-grouting connection. post-grouting with pump.
Cement bags platform	5 x 20 kg

Hydraulic system

Powerpack	HPP355 (1 x 55 kW)
Filtration size (pressure / return)	20 µ / 10 µ
Oil tank volume	160 liters (drilling)
Tank filling	Manual pump
Cooler for hydraulic oil	1 x OW30 (1 x 30 kW)
Low oil level indication	Stop drilling when the oil level in drilling tank is low
Safety shut down	Low water pressure, low air pressure, low oil level
Oil drilling safety temperature	Above 75°C

Drilling control system

Type of control system	THC561 (TS2-362)
Operating principle	Hydraulic control
Radio remote boom control	Fully proportional Vertical parallelism
Radio remote drilling control	Proportional feed manual control Feed deviation pressure
Automatic cycle	One hole automation
Adjustable parameters	Feed force, rotation speed Feed/percussion ratio
Other functions from operator controls	Rattling, flushing selection, fast feed
Drilling supervision	Antijamming system
Onboard diagnostics	Warning display / SICA platform
Hole depth and bolt monitoring	SICA screen and remote control
Automine®	Readiness
Drilling and boom movement inhibition	2 x switches and 1 x door interlock

Electric system

Standard voltages	525 V (± 10%), 50 Hz
Total installed power	75.5 kW (70 kW + 5.5 kW for the cement TBC mixer)
Main switch gear	MSE-1JH
IP-classification	Specification TS2-132
Allowed voltage fluctuation	Star delta starter (380 - 575 V)
Current reducer unit	TCR LPII with spooling system
Starting method	Operator station and rear of unit
Automatic cable reel	Automatic brake application before end of cable
Cable reel remote control	Operator station and rear of unit
Battery switch	1 x double pole lockable switch
Front lights (combined working and driving)	8 x 43 W LED (24 V)
Rear working light (cement mixer area)	2 x 9 W LED + search light
Amber flashing light	LED (24V)
Operator station light	Standard
Sealed AGM batteries	2 x 12 V (95 Ah)

Air and water flushing system

Flushing of holes	By Water
Water booster pump type	WBP1 (50Hz 4kW, 60Hz 5.5kW)
Water pump capacity	30 l/min at 11 bar
Water pump inlet pressure	2 – 7 bar (while drilling)
Flushing water pressure	Max. 20 bar
Shank lubrication device	SLU1 (air / oil mist)
Air compressor	CTN16 (1.6 m^3/min at 7 bar)
Manual air flushing	1 x 60 liters air receiver
Rock drill oil consumption	100 - 200 g/h
Rock drill air consumption	150 - 250 l/min

Technical Specification

Operator's safety canopy

Canopy certification	FOPS / ROPS (ISO 3449) with mechanical stopper
Unit height in tramming	High position : 1 950 mm Low position : 1 825 mm
Operation	Seated operations
Operator's seat	Ergonomic T-back seat
Sound pressure level EN 16228	Operator station: 98 dB(A)

Carrier

Type of carrier	TCLP II (frame-steered)
Carrier articulation	± 43°
Rear axle oscillation	± 15°
Ground clearance	300 mm
Diesel engine	Deutz BF4M2012 (74 kW, Tier 2)
Diesel engine control	Electronic, EMR
Exhaust catalyzer	Standard
Transmission	Hydrostatic, automotive
Wheel motor	4 x radial piston MSE18 high torque
Tires	315/85 x 15
Service brakes	Hydrostatic and positive braking
Parking and emergency brake	SAHR fail safe type wet disc brakes
Neutral braking	Brakes applied when neutral position activated
Tramming speed	8.6 km/h (Horizontal) 4.3 km/h (14%=1:7=8°)
Gradeability / sideways tilt	Max. 15° / 15° (according to EN 16228-2)
Fuel tank	60 liters
Tramming oil tank	50 liters
Carrier stabilization	Vertical (front and rear)
Brake release	Manual pump
Tramming alarm	Standard
Wheel chocks and holder	2 pieces
Document box	A3 format
Access point	Yellow reflective (stair and handle)
Knowledge Box™	Connectivity solution (TS2-535) My Sandvik insight readiness (TS2-390)
Color scheme	Sandvik standard
Documentation	1 x Operator's manual 1 x Technical manual (in English only) 1 x Parts manual (in English only) 2 x USB key of manuals (PDF files) 1 x Online Parts manuals (My Sandvik)

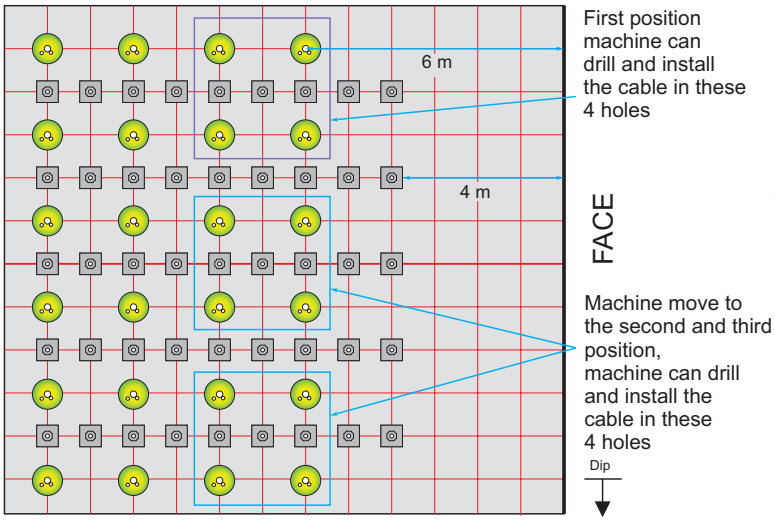
Optional features and packages

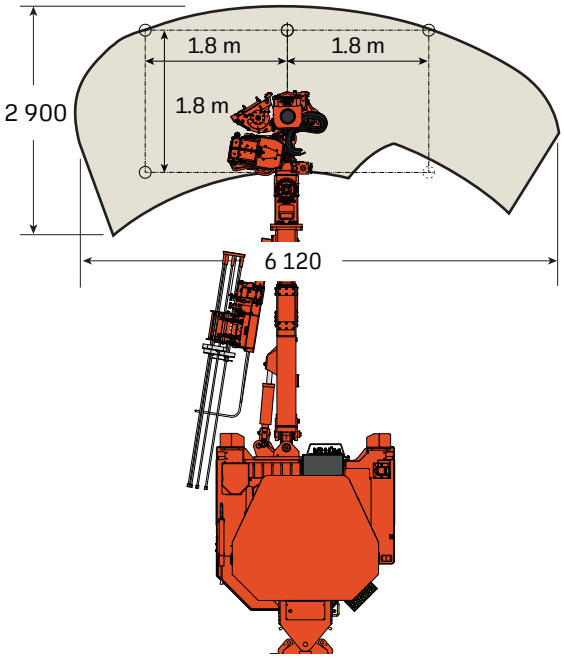
Boom	
Rear stinger extension	2 x 1 000 mm (Specification TS2-572)
Grouting and cabling system	
Removal grouting system	
Hydraulic system	
*Oil tank filling pump	Electric
Additional tramming HP filter	10 micron
Biodegradable oil	Condat HFDU68 flameproof
Electric system	
Electric cabinet	Protection door
*Starting method	Soft starter 380 - 575 V only
Electric cables	Specification TS2-121
Ground fault and overcurrent protection	VYK
Indicator light for jacks up	Sensors in the jacks
Dewatering pump outlet	Max.11 kW (380 - 575 V)
Air and water system	
Air mine connection	With IP5 air cleaner
Compressed air outlet	Hose and reel for accessories
Cleaning system	
HP system with reel	Up to 180 bar (TS2-343)
Greasing systems	
Centralized greasing points	Carrier (TS2-463)
Manual system	Greasing gun and cartridge with hose reel (TS2-463)
Fire suppression system	
Hand held fire extinguisher	2 x 6 kg Type ABC
Automatic system	Ansul, 6 nozzles (TS2-460)
Auto. fire suppression system	Sandvik Eclipse™ (TS2-461)
Carrier	
Engine filter	Diesel particulate filters (DPF)
*Foam filled tires	4 pcs
ABA brakes	Auto brake application on default
*Lockable filler cap	Fuel and oil tanks
*Knowledge Box™	My Sandvik productivity readiness (TS2-390)
Proximity interface (PDS system)	CANbus Level 9 (TS2-381)
Extra items	
Berg plug / Berg base	
Spare rock drill	RD314
Tools and pressure test box	Specification TS2-429
Spare wheel assembly	Air or foam filled tire
Special tools for rock drill	Field tool set (TS2-119) Complete tool set (TS2-118)
Special tools for rotary drill	Field tool set
Documentation	Extra paper, PDF manuals
Warranty extension	One year (excl. Kazakhstan)
Package: Country specific	SAS (Specification TS2-155)
Package: Extra safety	Specification TS2-275
Package: *Harsh water	Basic or advanced (TS2-049)

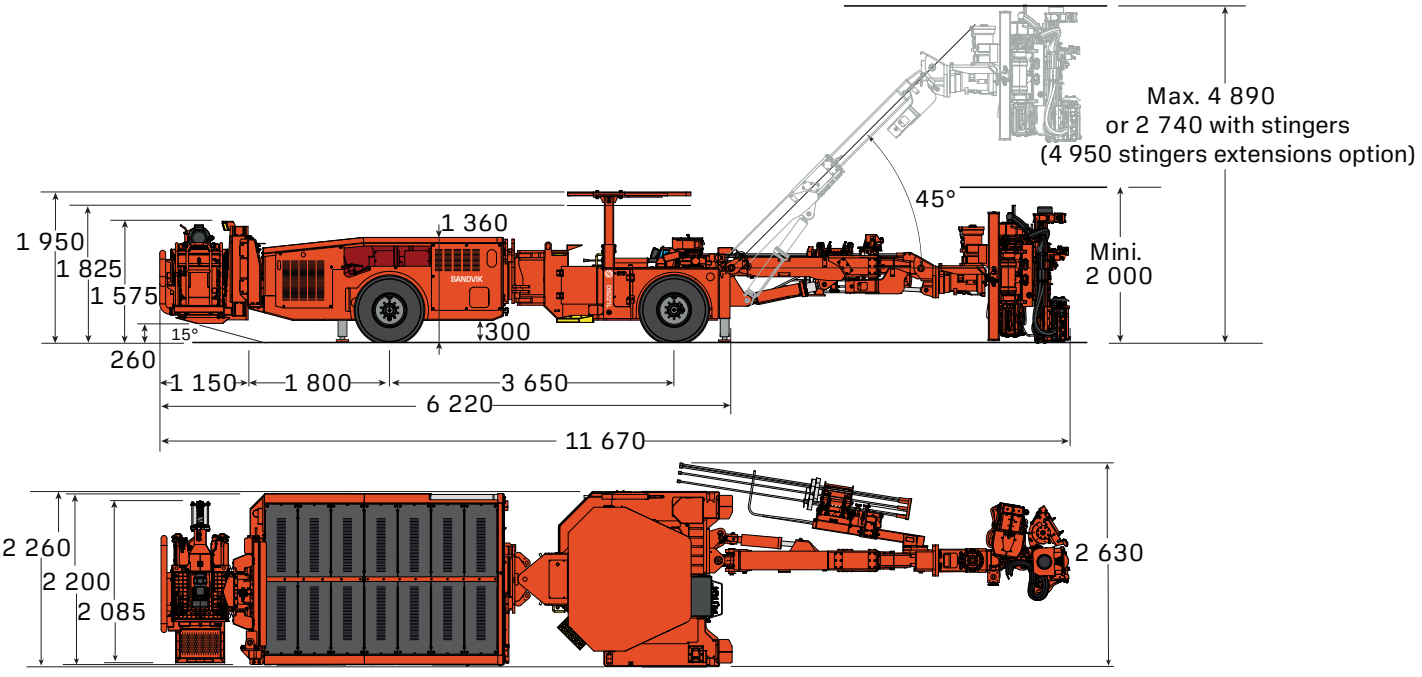
**) Replaces standard feature*

Technical drawings

All dimensions in mm

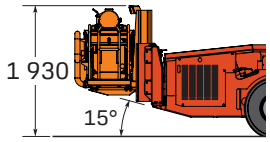




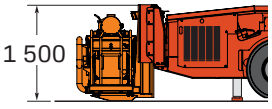


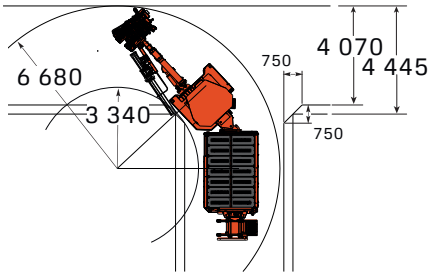
Positions of cement mixer

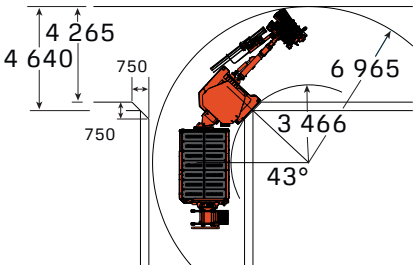
High position



Low position







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